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II. Observations of the Planet Uranus, made in the year 1843. By C. Rumker, Esq. Communicated by Dr. Lee.

The observations extend from September 10 to October 31. They are corrected for refraction, but not for parallax.

III. A letter was read from Professor Schumacher to Mr. Baily, dated January 5, 1844, enclosing the Elements of the New Comet, computed by Dr. Goldschmidt, at the request of Professor Gauss, and which are as follows:—

Epoch of Mean Longitude, 1843, Dec$^{\text{r}}$. 2$^{\text{d}}$·11876 Berlin mean time, 58° 31′ 39″ (from the apparent equinox).

Mean Daily Motion	535″·7079
	° ′ ″
Perihelion	52 32 55
Angle of Eccentricity	31 29 39
Log. Semi-axis Major	0·5473857
	° ′ ″
Node	208 21 20
Inclination	10 58 58

And he remarks that, if the observations of the comet that have recently been made can be depended on, the orbit approaches the nearest to a circle of any that are yet known.

IV. On the Orbit of the Comet of Faye. By Professor Henderson.

Professor Challis had the kindness to communicate to me the following places of the comet observed at Cambridge. They were determined by comparison with 23 and 32 *Orionis*, and he believes that they are pretty accurate.

Mean Time from Greenwich Mean Noon.		Apparent R. A. of Comet.	Apparent N. P. D. of Comet.
	h m s	h m s	° ′ ″
1843 Nov. 29	11 12 23	5 21 37·5	84 24 55
Dec. 8	9 59 18	5 17 28·7	85 47 53
16	11 55 45	5 13 33·0	86 35 55

Suspecting that the great differences between the elements of the two parabolic orbits which I formerly communicated, might arise from errors in the observations employed, I proceeded to investigate the elements anew from the Cambridge observations. I followed the method of Olbers, and, after repeated approximations, the best parabolic orbit which I obtained, differing considerably from both the former, did not represent the middle observation to within six minutes of space.

This quantity being much too great to be imputed to error of observation, I concluded that the orbit was not parabolic, this supposition seeming to explain the discordances of the elements.

I next investigated the conic section in which the comet moves, according to the method of Gauss in the *Theoria Motus Corporum Celestium*, employing the three observations at Cambridge; and I

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obtained an elliptic orbit, whose period of revolution is about six years and a half. The elements are

Time of Perihelion Passage, Oct. 23$^{\mathrm{d}}$·6970 Greenwich mean time.

Longitude of Perihelion	52° 57′ 52″	mean eq. of 1844·0.
Longitude of ascending Node	208 7 28	
Inclination	10 55 23	
Eccentricity .... sin	31 20 58	
Logarithm of Semi-axis Major	0·545352	
Mean Daily Motion	539″·484	
Time of Revolution	6·57702	sidereal years.

Motion Direct.

The following expressions for the comet's co-ordinates enable its geocentric positions to be more readily computed:—

$$x = [0{\cdot}50302] \sin (e + 138^\circ\ 5'\ 32'') - 1{\cdot}10654$$
$$y = [0{\cdot}50843] \sin (e + 55\ \ 35\ \ 24) - 1{\cdot}38397$$
$$z = [9{\cdot}94451] \sin (e + 74\ \ 56\ \ 11) - 0{\cdot}44213$$

e denoting the eccentric anomaly.

The errors of the computed places for all the observations which have reached me are as follows:—

		R.A.	Declination.
		″	″
Nov. 22	Paris	− 303	− 19
24	Paris	− 1	+ 7
29	Cambridge ...	+ 18	+ 10
	Kensington ...	+ 3	+ 1
	Greenwich ...	+ 42	+ 2
Dec. 2	Edinburgh ...	− 6	− 17
8	Cambridge ...	+ 15	+ 12
15	Edinburgh ...	+ 7	+ 46
16	Cambridge ...	+ 23	+ 12
25	Edinburgh ...	− 40	+ 23

The first observation of right ascension at Paris must be affected with a considerable error.

It is very desirable that the comet should be observed for as long a period as possible. The following ephemeris for 10$^{\mathrm{h}}$ 30$^{\mathrm{m}}$ Greenwich mean time, indicates its position:—

Day.	Right Ascension.	Declination.	Distance from Sun.	Distance from Earth.
1844.	h m s	° ′		
Jan. 11	5 8 20	+ 3 36	1·843	0·973
15	5 9 12	3 55	1·858	1·008
19	5 10 36	4 17	1·873	1·046
23	5 12 28	4 42	1·889	1·087
27	5 14 44	5 8	1·906	1·130
31	5 17 32	5 35	1·923	1·176
Feb. 4	5 20 44	6 4	1·941	1·222
8	5 24 16	6 31	1·959	1·270
12	5 28 16	+ 6 58	1·977	1·320

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In several respects this comet is very remarkable; and it may afford room for speculation regarding its identity with the lost comet of 1770. The orbit resembles more nearly the elliptical orbits of the planets than those of the periodic comets yet known. In its aphelion and perihelion it approaches nearly the orbits of Jupiter and Mars; and it must occasionally experience great perturbations from the former. It also passes within comparatively small distances of the orbits of the minor planets.

I have to-day received Professor Schumacher's circular, dated the 5th instant, communicating Dr. Goldschmidt's elements, which are nearly the same as mine. They may be considered as confirming each other.

I obtained an observation of the comet on December 25. Another on December 20 is not yet reduced, the star of comparison being undetermined.

	Mean time at Edinburgh.	R.A.	Declination.
	h m s	h m s	° ′ ″
December 25......	11 31 58	5 10 4·6	+3 1 42

Edinburgh, January 10, 1844.

V. A Letter from Professor Henderson announcing an additional Observation of the Comet of Faye.

"*Edinburgh, January* 10, 1844.

"This evening the comet was barely visible in my telescope, a 5-feet achromatic, with an object-glass of 3·6 inches. It was seen only at times, according to the varying clearness of the sky. At $9^{h}\ 44^{m}\ 24^{s}$ the right ascension was $5^{h}\ 8^{m}\ 28^{s}\cdot1$; the declination estimated + 3° 29′. The right ascension observed exceeds that deduced from the ephemeris by 16 seconds of time.

"T. Henderson."

VI. Elements of the Comet of Faye, computed by J. C. Adams, Esq. of St. John's College, Cambridge. Communicated by Professor Challis.

The observations used were made with the Northumberland Telescope of the Cambridge Observatory; and the deduced places are as follows:

Greenwich Mean Solar Time.	Apparent R. A. of Comet.	Apparent N. P. D. of Comet.
h m s	h m s	° ′ ″
Nov. 29, 11 12 23	5 21 37·5	84 24 55
Dec. 8, 9 59 18	5 17 28·7	85 47 53
16, 11 55 45	5 13 33·0	86 35 55

Mr. Adams had previously computed the orbit by the method of Olbers, on the supposition of its being a parabola, but he found that the middle observation was so badly represented, that this